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09/926,561	11/19/2001	Toshio Morigaki	011536	8736

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EXAMINER
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HAMILTON, CYNTHIA

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 02/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/926,561

Applicant(s)

MORIGAKI ET AL. 

Examiner

Cynthia Hamilton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 8-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,8-10,12-14 and 20-23 is/are rejected.
- 7) ☒ Claim(s) 3,4,11 and 15-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 8-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 8 reads:

A photoresist ink for manufacturing a printed wiring board produced by using the photosensitive resin composition according to any one of claims 1-4.

It is not clear from these words if (1) the photoresist ink is produced by using the photosensitive resin composition or if (2) the printed wiring board is produced by using the photosensitive composition. If the latter is true, any photoresist ink known in the art reads on the photoresist ink of instant claims 8-9.

3. Claims 8-9 are rejected under 35 U.S.C. 102(a) as anticipated by Morigaki et al (EP 0 942 328 A1). If the photoresist ink of claims 8-9 is not comprised of the compositions of any one of instant claims 1-4 then the photoresist inks of Morigaki et al anticipate the instant ink of claims 8-9 because any photoresist ink anticipates the instant ink of claims 8-9 because no further limitation is put on the ink than that it be a photoresist ink. "For manufacturing a printed wiring board" is held as an intended use and not a limitation on said ink. The examiner makes note here of the question of indefiniteness with respect to the ink of claims 8-9.

4. Claims 8-9 are rejected under 35 U.S.C. 102(a) as anticipated by Hashimoto et al (5,821,031). If the photoresist ink of claims 8-9 is not comprised of the compositions of any one of instant claims 1-4 then the photoresist inks of Hashimoto et al anticipate the instant ink of

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claims 8-9 because any photoresist ink anticipates the instant ink of claims 8-9 because no further limitation is put on the ink than that it be a photoresist ink. "For manufacturing a printed wiring board" is held as an intended use and not a limitation on said ink. The examiner makes note here of the question of indefiniteness with respect to the ink of claims 8-9.

5. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 9 provides for the use of a photoresist ink as a photoetching resist ink, a plating resist ink or a solder resist ink, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 9 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

6. The examiner notes that the printed wiring board of claim 14 does not require that the composition used to produce it be present in the printed wiring board claimed. Evidence of this breadth of scope is set forth in applicants' claim 15 wherein the composition of claims 14 is completely removed by the end of the method set forth to produce a printed wiring board as set forth in claim 14.

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7. Claim 14 is rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Morigaki et al (EP 0 942 328 A1). The printed circuits of Morigaki et al made in [0062-0068] are made with a different photoresist than that of any one of instant claims 1-4. However, the final plate when the photoresist is completely removed is essentially the same regardless of the photoresist used. The printed circuit board of claim 14 is written in a "product by process" form without any actual process steps. What is claimed is a printed wiring board produced by using the photosensitive resin of any one of claims 1-4.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The final printed circuit board of Morigaki et al is essentially the same as the instant printed circuit board wherein the photoresist used for plating or etching has been fully stripped after plating and etching. The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., In re Garnero, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979). This is not the case with the instant board of claim 14. "The Patent Office bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature" than when a

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product is claimed in the conventional fashion. In *re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In *re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). The examiner holds that the final printed circuit board of Morigaki et al would be the same or essentially the same board as would be made by the process of applicant's claim 15. "[T]he lack of physical description in a product-by-process claim makes determination of the patentability of the claim more difficult, since in spite of the fact that the claim may recite only process limitations, it is the patentability of the product claimed and not of the recited process steps which must be established. We are therefore of the opinion that when the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith." In *re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972).

8. Claims 20-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 20 the description of (A) is unclear because it makes no sense at the point of "...an aqueous polymer emulsion which contains a water-insoluble polymer as its main N-

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alkylol(meth)acrylamide....” Something appears to be missing. What is meant by “its main N-alkylol(meth)acrylamide” is unclear. Is there more than one N-alkylol(meth)acrylamide in order to have a “main” one or are parts missing from this claim? This claim is supposed to be original claim 5 written in independent form. It is not. The (A) is not the same.

9. Claims 20-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants have pointed to original claim 5 as support for new claims 20-23. It is not. There is no “(A) an emulsion of a photosensitive water-insoluble polymer, the emulsion being obtained by reacting (i) an aqueous polymer emulsion which contains a water-insoluble polymer as its main N-alkylol(meth)acrylamide.” What is found in original claim 5 for (A) is “(A) an emulsion of a photosensitive water-insoluble polymer, the emulsion being obtained by reacting (i) an aqueous polymer emulsion which contains a water-insoluble polymer as its main component and which contains a polymer having a hydroxyl group with (ii) an N-alkylol(meth)acrylamide”. What is not part of (A) in claims 20-23 is “component and which contains a polymer having a hydroxyl group with (ii) an”. Applicants have not shown full support for this broader generic (A).

10. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1-2, 8-10, and 12-14 rejected under 35 U.S.C. 103(a) as being unpatentable over Higuchi (JP 54-135526 as evidenced by English translation PTO 03-3597) in view of Balfour et al (EP 0 249 306) and Plambeck (2,791,504). Higuchi teaches all the compositions, processes of instant claims 1-2, 7-10, and 12-14 with the exception of a monomer having at least one photoreactive ethylenically unsaturated group, i.e. instant (B) wherein in Higuchi in Practical Example 1, poly (vinyl alc.) is the water soluble polymer with a hydroxyl group and poly (vinyl acetate) emulsion is the water insoluble polymer with water. Benzoin me ether is the photopolymerization initiator. Higuchi makes no comment about adding such a component. However, the use of such added monomers is known in the screen printing art for systems wherein both the polymeric binder is ethylenically unsaturated and there is an added ethylenically unsaturated low molecular weight unsaturated molecule capable of vinyl polymerization. Balfour et al teach such a system. Balfour et al varies from the instant invention in that there is no water insoluble polymer in the emulsion reacted with N-alkylol(meth)acrylamide. Balfour teaches in the first col. on page 2 "To increase the efficiency



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of the reaction, it is very desirable that the high molecular weight water-soluble polymer should contain available unsaturated groups, capable of participating in the polymerization reaction.

When such groups are available, during the reaction the polymer chains themselves crosslink, the molecular weight rises very rapidly and the efficiency of the photoreaction is greatly increased."

This idea that crosslinking via vinyl groups with polymers present in a photocurable composition is old as evidenced by Plambeck in col. 6, lines 51-69. Plambeck discloses

11 layer, which can be liquid or solid, including gas, in any  
ture. The preferred monomers are the ethylenically-  
unsaturated, addition-polymerizable monomers, particu-  
larly those wherein the said ethylenic linkages are ter-  
minal, i. e., those monomers having the characteristic  
5  $\text{CH}_2=\text{C}<$  group, i. e., the vinylidene monomers. Be-  
cause of the greater speed with which such compositions  
polymerize to rigid materials, it is preferred that the  
photopolymerizable layer contain appreciable proportions  
of ethylenically-unsaturated polymerizable materials con-  
10 taining a plurality of said polymerizable linkages per mol-  
ecule. These types of monomers are conventionally re-  
ferred to as cross-linking agents. This cross-linking facil-  
ity can be incorporated in the photopolymerizable layer  
through the use of polymers containing the indicated plu-  
15 rality of polymerizable unsaturated linkages in which in-  
stance such materials serve a dual function of both in-  
creasing the viscosity of the photopolymerizable layer to  
the desired level and making available the desired cross-  
linking facility for the photopolymerization.

Thus, the combination of low molecular weight vinyl group crosslinking materials with the compositions of Higuchi to cause the polymerization reaction to rise rapidly and increase the efficiency of the photoreaction by increasing the proportions of ethylenically-unsaturated polymerizable materials per molecule present as taught by Plambeck and Balfour et al would have been prima facie obvious.

14. Applicant's arguments filed November 6, 2003 have been fully considered but they are not persuasive. Applicants argue that Balfour and Plambeck fail to provide a motivation to add a

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monomer ingredient to the Higuchi compositions. This is not true. The reasons for the addition are for the polymerization reaction to rise rapidly and increase the efficiency of the photoreaction by increasing the proportions of ethylenically-unsaturated polymerizable materials per molecule present. Applicants do not address this issue in their arguments. Applicants argue that Higuchi does not recognize this advantage. The examiner agrees but states that it is Plambeck and Balfour that teach this improvement. The rejection stands.

15. Claims 3-4, 11, 15-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

*Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Cynthia Hamilton whose telephone number is (703) 308-3626. As of December 12, 2003, this telephone number will be 571-272-1331. The examiner can normally be reached on Monday-Friday, 9:30 am to 5:00 pm.*

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*If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff can be reached on 703-308-2464. As of December 12, 2003 this phone number will be 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.*

*Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305 0661.*



Primary Examiner Cynthia Hamilton

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January 24, 2004

CYNTHIA HAMILTON  
PRIMARY EXAMINER